ENB

UNITED STATES

DEPARTMENT OF AGRICULTURE

LIBRARY
STATE PLANT BOARD

BUREAU OF
ENTOMOLOGY AND PLANT QUARANTINE
NEWS LETTER

19 Anticaking calc. arsenate
23 Mosquitoes in Fla.
23 Fruitfly parasites in Puerto Rico.

VOLUME II
No. 11.

Digitized by the Internet Archive
in 2016

https://archive.org/details/newsletter2111wash

UNITED STATES DEPARTMENT OF AGRICULTURE

BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE

NEWS LETTER

FOR SEPTEMBER 1935

Vol. II, No. 11 (Not for publication) November 1, 1935

FRUIT INSECT INVESTIGATIONS

Dispersion habits of dried-fruit beetle.--D. F. Barnes, of the dried-fruit insects laboratory at Fresno, Calif., has conducted extensive experiments to obtain information on the dispersal habits of the dried-fruit beetle. Using the methods outlined in No. 51 of the Bureau's ET series entitled, "Methods and apparatus for studying dispersion of nitidulids", 56,600 beetles from decaying oranges were stained and placed in paper bags for liberation. Owing to high temperatures, crowded containers, and, perhaps, to the effect of the eosin stain, 8,677 beetles, or 15.3 percent, died. The net number released was 47,900. A large area of abandoned fig trees about 20 miles east of Fresno and apart from the main areas of productive fig acreage was chosen for the experiment. Twenty-six standard dried fruit beetle traps, baited with fermenting dried peaches, were distributed along two intersecting straight lines, one running from north to south and the other from east to west. The point of liberation was the intersection of the lines. It was shown that beetles may move more than 1,800 feet in less than 24 hours and that it is possible to recover them at distances of about 9,500 feet after 6 days. Unmarked beetles in considerable numbers (490 on August 12) came to traps set in non-fruit-producing areas. The traps on the east line, especially, were remote from areas where the beetles were expected to be found. This area is near the foothills and consists of uncultivated land, grain stubble, and summer fallow, wholly inhospitable, one would suppose, to dried-fruit beetles. The nearest known source from which these insects may have come was a citrus dump nearly 3 miles east. Of the estimated 47,900 beetles liberated, 274, or 0.57 percent, were recovered. The traps west of the point of liberation took the fewest number of stained beetles. (The prevailing wind direction is northwest.) One trap 1,260 feet east of the central point captured 144 stained beetles during the first 24 hours.

Fluorine injury to peaches in Georgia.--Oliver I. Snapp and J. R. Thomson, of the peach-insect laboratory at Fort Valley, Ga., have made a full report on the injury caused by fluorine compounds used experimentally in the control of the plum curculio. Although large numbers of peaches that dropped had been injured by the insecticides used, a sufficient number remained on the trees so that the injury was not reflected in the number of peaches harvested. The fruit remaining on the trees treated with fluorine compounds averaged smaller in size, however, and also showed evidence of considerable spray injury, the percentages being as follows:

Material	Applications	Harvested fruit injured by spray
	Number	Percent
Barium fluosilicate, 2 lbs. in 100 gals	4	24.1
Barium fluosilicate, 3 - 100	3	13.3
Synthetic cryolite, 2 - 100	4	21.3
Natural cryolite, 2 - 100	4	27.8
Natural cryolite, 3 - 100	3	10.2

The foliage was uninjured by the above treatments. The results of the experiments this year warrant the conclusion that a full schedule of applications of barium fluosilicate or of synthetic or natural cryolite cannot be used on peaches in the South on account of the danger of serious injury to fruit. The amount of residue on the fruit has not yet been determined.

MEXICAN FRUIT FLY CONTROL

Fruit fly trapping in lower Rio Grande Valley.--One adult Anastrepha ludens Loew was trapped in the Mission district on September 9. This is the first adult of this species taken in the valley since May 22. There were 8,889 traps in operation in Texas during September. These traps were examined 28,769 times, and in addition to the one specimen of A. ludens, 2 A. serpentina Wied., 4 A. fraterculus auct., and 28 A. pallens Coq. were trapped. One A. fraterculus was trapped in Matamoros and 117 A. ludens and 249 larvae of Anastrepha sp. not ludens were taken from market fruit in Matamoros and Reynosa.

DATE SCALE CONTROL

No scale found in September.--Ground inspection was completed in the Indio district during the month and most of the plantings were dropped from the inspection lists as being free from scale. A total of 2,780 palms were inspected and no scale was found. This completes systematic inspection by districts in the Coachella Valley. Inspection of individual plantings still under suspicion because of location, physical condition, or past history will be continued. In the Imperial Valley inspection was continued in the areas surrounding the most recent infestations and a survey to locate any Canary Island palms that may have been overlooked was begun. During the month 637 date palms and 425 Canary Island palms were inspected and no scale was found.

CEREAL AND FORAGE INSECT INVESTIGATIONS

Colonization of European corn borer parasites.--W. A. Baker, Toledo, Ohio, reports that the distribution of parasites of the European corn borer in 1935 procured from importations of hibernating larvae from Europe and the Orient, are as follows:

State	Lydella stabulans var. grisescens	Inareolata punctoria	Cremastus flavo-orbitalis	Bracon atricornis	Total
	Number	Number	Number	Number	Number
Maine----------	1,927	--	--	--	1,927
New Hampshire--	5,569	--	--	--	5,569
Vermont--------	9,813	--	--	--	9,813
Massachusetts--	7,824	--	--	--	7,824
Connecticut----	1,823	1,138	771	7	3,739
New York-------	11,767	1,712	600	--	14,079
New Jersey-----	6,461	565	593	--	7,619
Virginia-------	3,956	--	600	--	4,556
Michigan-------	5,980	--	--	--	5,980
Ohio-----------	25,898	3,888	--	--	29,786
Indiana--------	11,904	--	--	--	11,904
Total---------	92,922	7,303	2,564	7	102,796

These parasites were obtained from 1,112,925 larvae collected on the west coast of Italy by this Bureau, the collections being made under the direction of H. L. Parker, of the Foreign Parasite Introduction Division, and from 34,592 larvae collected on Kyushu Island, Japan, through the cooperation of the Entomological Branch of Canada. The total mortality, from the time of collection of the parasites in the emergence chambers until their release at the liberation points, was less than 2 percent. The primary objective of the colonization program this season was to procure and release Inareolata punctoria Roman, all other species obtained from Europe being incidental to this. Releases were made in localities not colonized prior to this year, thus extending the colonized area into regions more lightly infested by the corn borer. I. punctoria and Lydella stabulans var. grisescens R. D., particularly the latter, have been well distributed throughout the more important areas of current concentration of corn borer infestations. The species not thoroughly tested to date--Cremastus flavoorbitalis (Cameron) and Bracon atricornis Smith--were released at established test points where they have not been liberated before, in order to obtain their reaction to different environments. All three of the species given prominence in the 1935 program--I. punctoria and L. stabulans var. grisescens from Europe and C. flavoorbitalis from the Orient--are being tested in two new environments in the infested regions in New Jersey and Virginia.

Trap-crop method impractical for chinch bug control.--C. M. Packard, La Fayette, Ind., reports as follows: "The spring and early summer seasons of 1934 and 1935, during which data were collected concerning the relative attractiveness of the various small grains to chinch bugs, offer about as wide extremes of weather conditions as are ever likely to occur during years of chinch bug abundance. Although it would be desirable to have similar data taken in a more normal season, for comparison, it seems likely that such data would fall between the extremes already observed. However, the data already obtained throw considerable light on the practicability of some of the questionable methods of chinch bug control suggested from time to time. One of these is the use of small grains, especially barley and spring wheat, as concentration or trap crops. As would be expected, the studies here reported show decisively that the food preferences of chinch bugs migrating from winter quarters vary with the climatic character of the spring season. In 1934 winter wheat and rye were the most commonly preferred crops but in 1935 barley and spring wheat were on the whole the most commonly preferred, although winter wheat and rye, especially the latter, were again heavily infested. Oats were least preferred but contained some spotted heavy infestations in both years, for one reason or another, even in areas where the preferred grains were present. In short, no one of the commonly planted small grains was preferred sufficiently to be a very dependable trap or concentration crop. The main weaknesses of the concentration, or trap crop, idea observed in the course of this work were: (1) The difficulty of obtaining adequate concentration of the bugs on account of their variable preferences for different grains under different weather and growth conditions; (2) the trap-crop acreage necessary would probably approach the acreage and number of fields of the more attractive grains customarily planted; (3) the difficulty of disposing of the infestation after concentration, owing in some instances to interfield migration of gravid adults when the favored crops no longer suited them; (4) the ability of adults to migrate from infested grain when it is destroyed by any known method of cultivation; (5) the necessity of using barriers, or timing the destruction of the trap crop by cultural methods so that the bulk of the first brood has hatched but still has not attained enough size to migrate readily on foot; (6) the tendency of the farmer to omit or slight the thorough cultural operations, or use of barriers, necessary for effective destruction of the concentrated bugs; (7) the gain through control of bugs by trap-cropping offset by loss of productive acreage and expense of planting and destroying the crop; and (8) limitation to other than graminaceous crops for replanting of trap-crop areas. On the other hand, under the drought conditions of 1934 many winter wheat and rye fields were utilized quite effectively as trap crops, although they were not originally planted for this purpose. Many cases were observed that year where severe infestation of corn was prevented by thoroughly plowing under and harrowing adjacent heavily infested winter wheat or rye fields at the right time to destroy the first-brood nymphs before they could migrate to the corn. In some instances, however, it was necessary to supplement the cultural operations by the use of creosote barriers."

Weedy alfalfa induces injury by pentatomid bugs.--O. L. Barnes, Tempe, Ariz., reports: "It is known that at least four species of stink bugs damage alfalfa seed in southern Arizona and adjacent areas. Three of the species were found in each area surveyed, and two species, Chlorochroa sayi Stal and Thyanta custator Fab., were rather widely distributed in alfalfa fields in each area. Seed damaged by pentatomid feeding punctures ranged from a trace to 44.4 percent in Arizona alfalfa fields in 1935. It was noticed early in the season that stink bugs were most numerous in fields with intermixed stands of alfalfa and wild host plants of the bugs or in fields with borders, ditch banks, or waste areas nearly grown up in wild hosts of the insects.

Almost without exception these weedy fields yielded the largest percentages of seed ruined by stink bug punctures, and generally the damage was higher where the weeds grew among the alfalfa plants. In three seed-growing areas the cleaner fields were those in which the seeds were injured least by pentatomids."

Two generations of Melanoplus mexicanus Sauss. in Salt River Valley, Ariz.--V. L. Wildermuth and E. G. Davis, Tempe, report that in the Salt River Valley M. mexicanus gave a second hatch of grasshoppers the middle of July. Many fields showed a high population count. The outbreak was controlled readily, however, by the use of poisoned-bran mash. One field southeast of Tempe was not poisoned, and in this field continuous observations have been made for the past 3 months. We were especially anxious to ascertain the time, place, and egg-laying habits of the mature females. On September 25 many hoppers were noted ovipositing. They were placing their eggs mostly on the raised borders in the field, rather than in the level areas between. The field contained a good stand of alfalfa and had only a few days previously been disked to barley. The ground was moist and pliable as a result of these cultural operations, and during the evening of the previous day, about 0.1 inch of rain fell in the locality. The temperature during the time of observation, from 10 to 11 a.m., was 80° F. In addition to the hoppers noted ovipositing, many showed distended abdomens. It is interesting to note that all stages of hoppers were present in the field, from newly hatched first-instar nymphs to mature adults. About 80 percent of the hoppers were mature. It is hoped from these observations that we will have less trouble in locating eggs during our fall survey this year than was the case in the past survey.

Cage experiments with grasshoppers in Arizona.--Messrs. Wildermuth and Davis also state: "Our large field cage in the laboratory plots, which had been stocked with first-generation hoppers on May 6 for the purpose of determining the time of a second generation, produced rather large numbers of newly hatched nymphs on July 15. As great care has been exercised in placing this cage where no eggs could have been deposited the previous year, we are certain that these hoppers hatched from eggs laid during the first half of May, being approximately 70 days in the egg stage. This cage checks very closely with the results obtained in the cage last year. The hoppers hatching on July 15 grew and developed rapidly and on September 5 the first adults of the second generation were noticed. This was 52 days for the nymphal stage."

Correction.--In the News Letter dated October 1, 1935 (Vol. 2, No. 10) last paragraph on page 3, the sentence beginning, "The lodged grain afforded---", should read, "This volunteer wheat afforded----."

JAPANESE AND ASIATIC BEETLE INVESTIGATIONS

Soil population of Japanese beetle in September.--From larval surveys conducted by I. M. Hawley and S. R. Dutky, Moorestown, N. J., in the roughs of five golf courses in the older infested area the following data have been obtained on the various stages of the Japanese beetle present during September 1935.

Date	Overwintering brood	New brood			
		Egg	Larvae		
	Adult		1st-instar	2nd-instar	3rd-instar
	Percent	Percent	Percent	Percent	Percent
Sept. 1-10----	(1)	(1)	(1)	(1)	(1)
11-20----	0	0.2	3.9	58.9	37.0
21-30----	0	0.0	2.5	44.4	53.1

[1] Records incomplete because of rainy weather.

The retarded development evident during the past spring and which was shown in the late emergence of beetles, was still reflected in the soil population of the new brood at the close of September. The percentage of larvae in the third instar was much lower than normal for this period. The diseased larvae in the soil population at 5 stations in September 1935 were as follows:

Station	Diseased larvae		
	Sept. 11-12	Sept. 18-19	Sept. 25-26
	Percent	Percent	Percent
Merchantville, N. J----------------	3.5	4.5	10.7
Haddonfield, N. J------------------	27.5	11.5	34.6
Jenkintown, Pa---------------------	5.9	11.3	6.1
Rydal, Pa--------------------------	7.5	9.8	8.0
Philmont, Pa-----------------------	3.3	1.8	7.8
Average for all larvae collected--	5.3	5.5	10.3

Nearly all of the diseased larvae were of the milky type. All larvae found in surveys were brought to the laboratory and were reexamined for disease symptoms. The percentages given are, therefore, based on both field and laboratory examinations. During the month over 4,000 larvae collected from the sod treatment plots at the Moorestown laboratory in surveys made by the Control Division were examined and it was determined that 55, or 1.4 percent, showed the milky disease. This agrees with the figures for disease at the Moorestown golf course and Lippincott's pasture for September 1934.

Studies on fungus disease and the effect of soil moisture on the degree of parasitization by a fungus.--Preliminary soil inoculation experiments carried on by S. R. Dutky, Moorestown, to determine the effect of moisture on the degree of parasitization by fungi indicate that it is favored by low soil moisture and that the critical moisture value is associated with the maximum moisture at which soil particles will still adhere to the cuticula of the larvae. The fungi used were cultured from field-collected dead fungused larvae and the characteristics agree very closely with those of *Meterrhizium anisopliae*.

Diseases of Japanese beetle larvae.--The diseases of the larvae of the Japanese beetle encountered in a preliminary study by G. F. White, Moorestown, during the fall of 1933 are classified in a paper in press (by I. M. Hawley and R. T. White) in three groups--black group, white group, and fungus group.

Reference is made also to a nematode disease of the larvae.

Effectiveness of standard trap and modifications of standard trap in scouting for adult Japanese beetle.--During the month a report by F. W. Metzger, Moorestown, covering this work has been prepared. One hundred traps of three different types were operated at Cape Charles, Va., and Salisbury, Md., and 48 of each type at Pocomoke City, Md., during the summer of 1935 to determine the relative effectiveness of the various types which were as follows: Standard cylindrical type painted green and white; standard cylindrical type painted aluminum; and the newly developed scouting trap made of lacquered tin. In capturing the Japanese beetle the green-and-white trap is approximately twice as effective as the aluminum-painted trap or the scouting trap. The difference between the latter types is not appreciable. While the green-and-white trap is more effective in catching beetles, the decision as to what type to employ for scouting purposes cannot be determined without a careful consideration of the costs of shipping, operation, and maintenance, all of these being factors beyond the scope of this report.

Stomach poisons and repellents for adult Japanese beetle.--Tests conducted by W. E. Fleming and F. E. Baker, Moorestown, were made under controlled conditions of temperature, relative humidity, and light, and the value of the materials as stomach poisons and repellents compared with acid lead arsenate, which was tested at the same time and used as a standard insecticide. Aniline fluosilicate, di-methyl-dihydro-stearamide, diphenylamino, diphenylol propane, hexachlorobenzene, lauryl alcohol, and stearyl alcohol were not effective as stomach poisons. When the foliage of smartweed was not injured by these materials the beetles fed extensively, but when the foliage was injured by the chemicals it was largely unpalatable to them. An investigation was made of several organic sulphur compounds as insecticides against the Japanese beetle. When used at the rate of 8 pounds to 100 gallons of water, 5-chloro-1-amino-benzothiazole appeared to be equally as effective in killing beetles as lead arsenate used at this rate. Increasing the concentration of this material to 32 pounds did not significantly increase the insecticidal action but it decreased the extent of feeding. Mercapto-benzothiazole at the rate of 8 pounds to 100 gallons of water was about one-fourth as effective as lead arsenate and afforded little protection to the foliage. Higher concentrations of this material severely damaged foliage and 2-mercapto-6-ethoxy-benzothiazole was of no value as a stomach poison. When used at a concentration of 8 pounds to 100 gallons of water, tri-thioformaldehyde, 1-2 mercapto-naphthiazole, thio-beta-naphthol, n-octyl-p-toluene-sulphonamide, cetyl-thiocyanate, stearyl thiocyanate, thio-p-toluodine, and di-phenyl thiourea were of practically no value as repellents or stomach poisons. Tetra ethyl thiuram monosulphide, tetra methyl thiuram monosulphide, tetra methyl thiuram disulphide, and dipiperidinium thiuram tetrasulphide were of little value as stomach-poison insecticides but appear to be positive repellents against the Japanese beetle. Some feeding occurred on plants sprayed with tetra ethyl thiuram monosulphide and dipiperidinium thiuram tetrasulphide at a concentration of 8 pounds to 100 gallons of water, but practically no feeding occurred on plants sprayed with tetra methyl thiuram monosulphide or tetra methyl thiuram disulphide at this concentration. It was found that washing sprayed foliage with water modified only slightly the repellency of these methyl compounds. Tetra methyl thiuram monosulphide and tetra methyl thiuram disulphide appear to possess all of the favorable properties of derris as a repellent against this insect and in addition have the advantage of being definite synthetic materials apparently resistant to washing from foliage by rain and to rapid decomposition in sunlight. The thiuram compounds should be extensively tested in the field during the coming season as repellents against the Japanese beetle.

Development of stomach poisons for control of Japanese beetle larvae.--During the spring of 1935 a study was made by Messrs. Fleming and Baker of the effectiveness of lead arsenate in killing larvae of the Japanese beetle in different soils, which may be classified according to geologic origin, mode of formation, and topographic position as glacial soils, Appalachian Mountain soils, limestone valley soils, Piedmont Plateau soils, and coastal plain soils. It was found that the speed of insecticidal action, as compared with the action in sassafras sandy loam, varied from about one-third in the Colt's Neck loam to about two times in Lakewood sand. The total plant food in the soil appeared to have little effect on the insecticidal action. It was found that 82 percent of the variance in the insecticidal action could be attributed to the variation in the water-soluble plant food in the soils. The variation in the concentration of water-soluble phosphates in the soil appeared to account for 73 percent of the modification in the insecticidal action and may be considered as the most important modifying factor in the soil. Ammonia accounted for 2.4 percent and magnesia for 5.9 percent of the variance. The pH of the soil, and the water-soluble manganese, calcium, potash, chlorides, and nitrates appeared to have no influence on the insecticidal action. There was a high correlation between the amount of phosphate, sulphate, carbonate, ammonia, potash, and soda radicals introduced into sassafras sandy loam and the concentration of water-soluble arsenic in the soil. There appeared to be no correlation between the amount of chloride, nitrate, calcium, and magnesia radicals introduced and the soluble arsenic. It is evident that the introduction of phosphates, carbonates, ammonia, potash, and soda radicals increased the water-soluble arsenic, and the sulphate radical decreased the water-soluble arsenic in the soil. There appears to be a correlation between the effectiveness of acid lead arsenate as an insecticide and the formation of water-soluble arsenic in the soil. This relationship is being further investigated and will be reported later.

Effect of paradichlorobenzene on Japanese beetle eggs.--In a test, by J. W. Lipp, Moorestown, beetles were placed in tower cages over pots of soil and were allowed to oviposit. This soil containing eggs was then mixed with paradichlorobenzene at rates of 2 and 5 pounds per cubic yard. At the end of 7, 14, and 16 days results were as follows:

Treatment	7 days		14 days		16 days	
	Eggs	Grubs	Eggs	Grubs	Eggs	Grubs
Untreated--------------	268	0	382	5	16	41
2 lbs. paradichlorobenzene per cubic yard---------------	75	0	88	0	34	5
5 lbs. paradichlorobenzene per cubic yard-	17	0	38	0	6	0

These tests were not run simultaneously, the 14-day test being run last, at a time when the weather was distinctly cooler, which may account for the small number of grubs found in the untreated soil. A careful examination of the eggs in the treated soil (particularly in the higher dosage) showed many of them to be brown and not entirely firm, in contrast to the characteristic appearance of normal eggs. Although paradichlorobenzene was formerly thought to kill the newly hatched larvae without having any action on the eggs, these observations indicated some evidence of egg injury. It is apparent that with the lighter dosage the concentration was not sufficient to prevent some eggs from hatching or to kill young larvae 16 days after the treatment was applied.

Studies of Tiphia popilliavora, a parasite of the Japanese beetle.--T. R. Gardner, Moorestown, reports that emergence of T. popilliavora (Korean strain) adults from cocoons propagated in the fall of 1934 and stored in the temperature-control chambers began on August 19 and continued through September 16, with the peak of emergence occurring shortly after the first of September. A total of 5,300 adults emerged, giving an emergence percentage of 54.4. Of these, 56.4 percent were males and 43.6 percent were females. Nine colonies, each consisting of 200 laboratory-mated females, were placed in the field. Five of these colonies were placed in areas in New Jersey that were heavily infested with grubs and 4 were placed in Pennsylvania. One of the releases in Pennsylvania was placed on the Baederwood golf course, where the Koiwai strain of T. popilliavora is well established, to determine the future effect when these two strains are blended under field conditions. The remaining females were mated and are now being used in laboratory propagation work to obtain material for colonization in 1936. On September 11 and 16, respectively, adult females of this species of parasite were observed at the Paxon Hollow golf course in Pennsylvania and the Woodcrest golf course in New Jersey. These two colonies were placed in the field in the fall of 1934.

JAPANESE BEETLE CONTROL

Japanese beetle quarantine activities.--Classification records were readjusted to conform to the results of the season's scouting. Nurseries and greenhouses that previously had been newly classified and assigned the status of an infested establishment, pending an opportunity for an examination of the premises during the period of adult flight, and which were found uninfested this summer, have been accorded the privilege of shipping their plant material without actual inspection or treatment. Other establishments found infested for the first time will be obliged to conform to the stricter requirements of the regulations when their fall shipping season begins. About a dozen establishments, many of them on Long Island, on which a few beetles were found and located in recently and scantily infested sections, have been subdivided and reclassified with portions of each establishment in both classifications.

Lifting of restrictions on fruits and vegetables releases temporary employees.--With the revocation on and after September 18 of the seasonal Japanese beetle quarantine regulations on the movement of fruits and vegetables, the temporary force of 80 men engaged in farm-products inspection was dismissed. Although scattered beetles were still to be found in the generally infested area, they were not in flight and had not been found infesting farm products for some time prior to the lifting of the regulations. As beetles were still to be found in blooms of outdoor-grown flowers, the restrictions on the movement of cut flowers will be continued in effect until the maximum date, October 15.

Japanese beetle certification increasing.--A number of nurseries in the heavily infested area have begun to take on employees for their fall business. Certification of rose bushes has picked up and all phases of the certification work are on the increase. Cool weather resulted in a scarcity of adult Japanese beetles. Sand and gravel shippers in New Jersey were quite active, with numerous calls for fumigation of carload shipments of these materials. Strawberry-plant shippers on the Eastern Shore of Maryland steadily increased their demands for certification.

Japanese beetle trapping concluded for season.--Trapping for the Japanese beetle during 1935 was completed on September 20, when the traps in Augusta, Maine, were lifted and packed for storage. The traps in the 18 trapped communities in Maine were the last to be removed in the season's trapping program.

Air shipments inspected.--At the opening of a new airport at Allentown, Pa., an inspector from the Philadelphia office was kept busy inspecting and certifying shipments of cut flowers destined to California as "good will" tokens.

Survey of dead and dying elms begun as yellowing of foliage halts systematic scouting.--The last week in September marked a transitional stage from systematic scouting for Dutch elm disease infection to surveys for the purpose of locating dead and dying elms in connection with the winter's sanitation campaign. With few exceptions, systematic scouting in the major infected zone was concluded on September 15, when drastic reductions were made in the scouting force. Most of the men retained were assigned to locating and marking dead and dying elm trees. Later they will be transferred to eradication or sanitation crews. A limited amount of systematic scouting was performed in New Jersey areas that had not been previously reached because of extensions of infected areas. Personnel on work-relief funds was reduced from a maximum of 3,824 to approximately 2,200 men.

Dutch elm diseased trees found at Portsmouth, Va., and Brunswick, Md.--During the month samples were collected from trees at Portsmouth, Va., and Brunswick, Md. These were later confirmed as infected with the Dutch elm disease. The infected tree at Portsmouth is in the same general region as the Norfolk infections. A supervisor who was scouting railroad rights of way out of Baltimore located the Brunswick tree. Brunswick is approximately 50 miles from Baltimore. It is a center for freight reloading and is one of the transfer points through which imported burl elm logs passed en route to veneer mills. The Brunswick tree is the only new isolated infection center found during the current year's scouting activities. In the major diseased area the finding of a confirmed tree near the town of Craigville, Orange

County, N. Y., resulted in a slight increase in the infected zone in that State.

Progress of W. P. A. work in European corn borer scouting and survey.--European corn borer scouting and survey activities were under way by the end of the month in the New England States, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, Ohio, Indiana, Illinois, Michigan, and Wisconsin. As this work was not started until so late in the season, it is not probable that there will be an opportunity for organizing the scouting in West Virginia and Kentucky, as originally scheduled. Numerous first-record infestations were reported from heretofore uninfested townships in New Jersey, Michigan, and Wisconsin. By the end of the month the survey work in New England was nearing completion.

Clean cutting progresses in New Jersey swamp.--Clean cutting work in the Great Piece Meadows of Essex County, N. J., is progressing rapidly. Additional equipment and personnel accounted for a much greater production in this section. By September 28 the clean cutting had resulted in the destruction of 8,245 elms. Of this number, 234, or 2.8 percent, were confirmed by the laboratory as Graphium-diseased. The camp in this area has been moved to a different location to enable the men to work new power equipment in a heavier elm population.

Infested products certified after removal of egg clusters.--In the course of inspecting a car of birch fireplace logs, three inspectors working at Meredith, N. H., on September 24 found 80 new egg clusters and approximately 1,500 old ones. There were 17 cords of wood in the shipment. The cordwood had been cut in the woods around Meredith Neck and had been stored for some time in the presence of a heavy gypsy moth infestation. At Nobleboro, Maine, 3 egg clusters were removed from a carload of lumber consigned to Eastport, Maine. At Wescott, Maine, 12 egg clusters were found on 5 carloads of lumber consigned to Brooklyn, N. Y. At Deering Junction, Maine, 1 egg cluster was found on lumber consigned to South Camden, N. J. While inspecting a carload of lumber at Bridgewater, N. H., for transportation to Quebec, Canada, the district inspector destroyed 3 egg clusters. At Warner, N. H., 20 egg clusters were found on 2 truckloads of lumber consigned to Garden City, Long Island. Four shipments of birch-log firebrand containers inspected at Conway, N. H., for shipment to nonregulated territory in Connecticut were found to contain 14 egg clusters.

Mice rid lumber of gypsy moth infestation.--While inspecting 60,000 board feet of lumber in the South Portland, Maine, district, the inspector noted many empty female pupae cases on the boards, but could locate comparatively few female moths or egg masses on the lumber. There were several freshly deposited egg clusters and female moths on nearby trees. Almost every pile of lumber examined had one or more nests of mice in it. Apparently the mice had eaten the female moths as fast as they emerged from the pupal cases, thus preventing them from depositing their eggs. Moths of nearby trees were undisturbed.

Pine trees infested with gypsy moth and infected with white-pine blister-rust intercepted.--Prompt action by a district inspector in halting a passing west-bound motorist with evergreens tied on the rear of his car, prevented the movement from Laconia, N. H., to Media, Pa., of 5 small white pine trees. On 1 white pine tree were found two new gypsy moth egg clusters. All trees were found to be infected with the white pine blister rust.

FOREST INSECT INVESTIGATIONS

Feeding by adult native elm bark beetle.--H. A. Crandell, of the Morristown, N. J., laboratory, has previously reported that when adults of the native elm bark beetle (Hylurgopinus rufipes Eich.) were confined with small healthy elm trees in cloth cages they fed on the twigs and trunks. Referring further to these experiments and to others where elm logs suitable for oviposition or feeding purposes were placed in cages with the trees, Mr. Crandell states that feeding was heavy in both series of experiments. It was confined chiefly to the main stems or trunks, particularly to places covered with rough or fissured bark. The depth to which the beetles penetrated the bark varied, but in most cases the inner bark or cambium was reached and in many instances the feeding injuries extended to the wood. No brood galleries were formed, although the attacks on the trunks may have been for that purpose, but conditions were unfavorable to the beetles. Feeding in the crotches of twigs was rather common. In several instances the beetles had fed on the bark of the twigs of this year's growth, leaving comparatively large areas of exposed wood. Most of the feeding scars were indistinguishable from those typical of the small European bark beetle (Scolytus multistriatus Marsh.).

Dutch elm disease vector work in England.--D. E. Parker, formerly stationed at the Morristown, N. J., laboratory, reached England on July 18. He has been detailed to study the insect vectors of the Dutch elm disease in that country, cooperating with J. M. Walter, of the Bureau of Plant Industry, who has been assigned to investigate the disease there. Mr. Parker reports that in England he finds the large European bark beetle (Scolytus scolytus Fab.), which is not known to be present in the United States, much more vigorous than the small European bark beetle (S. multistriatus), a species now well established in the northeastern part of the United States. He saw one dead elm tree this year that was being riddled by S. scolytus, even to the exposed portions of the roots. In the other trees, 200 years or more of age, with trunks up to 4 and 5 feet in diameter and with very roughened, deeply fissured bark on their trunks, the frass expelled by the beetles covered the ground from 5 to 6 inches from the bases of the trees.

Bark beetles breed readily in treated stumps.--A. F. Verrall, of the Bureau of Plant Industry, has found that the application of powdered copper sulphate to the stumps of elms infected with Dutch elm disease gives satisfactory results in preventing sprouting. R. R. Whitten, of the Morristown, N. J., laboratory, has been making observations on stumps so treated to determine whether or not they are attacked by bark beetles. He finds that the treatment appears to cause the stumps to dry much more rapidly than untreated stumps and thus become favorable for attack by the bark beetles S. multistriatus and H. rufipes and for the development of their larvae much sooner than stumps not so treated. Mr. Whitten is now carrying on tests for the purpose of finding some substance that will prevent such attack and that may be used to supplement the copper sulphate treatment.

Spruce sawfly experiments at New Haven.--H. J. MacAloney reports that preliminary experiments in the laboratory indicate that the larvae of the European spruce sawfly (Diprion polytomum) will feed on the Colorado blue spruce. All three native spruces and the Norway spruce are attacked. No parasites have thus far been observed but a predatory pentatomid, Podisus maculiventris Say, gives promise of being an important control factor. This predator has been found in several places in New England. It attacks the larvae of the sawfly, especially the later stages, and sucks them dry.

Beech scale study.--W. L. Baker, of the Melrose Highlands, Mass., laboratory, spent the period September 4 to 11 in Maine, examining the beech scale permanent sample plots. Dr. Grant and Mr. Childs, of the Division of Forest Pathology, New Haven, Conn., visited the plots at the same time. Mr. Baker reports: " Data were obtained on the degree of scale infestation on the numbered trees and the condition of these trees. Generally speaking, the scale infestation was heavier than in 1934. The following table gives comparable data for the seasons of 1934 and 1935.

Scale classification group	Trees in all plots in each scale classification group	
	1934	1935
	Percent	Percent
Not infested	41.9	29.1
Trace of infestation	17.8	27.5
L1	35.2	18.5
L2	4.5	15.1
L3	0.6	7.8
L4	0.0	1.5
L5	0.0	0.0

The above table shows a decrease in the proportion of scale-free trees in 1935 and an increase in the proportion of trees from medium to heavily infested. Many trees infested only at the base in 1934 showed a pronounced infestation in 1935 up to heights of 8 and 10 feet. On the whole, no marked change was noted in the condition of the trees. A rough survey made by Mr. MacAloney, J. V. Schaffner, and S. F. Potts, of beech stands in Warren, Essex, Hamilton, and Franklin Counties in New York and in areas in southern Vermont and northwestern Massachusetts, failed to reveal the beech scale in these districts. An examination of the beech scale infestations in Westchester County, N. Y., showed no appreciable increase of this insect there in 1935. Chilocorus bivulnerus Muls., a predacious coccinellid on the scale, was abundant in the Scarsdale, N. Y., infestation."

Wireworm damages black locust seedlings.--During a nursery-inspection trip throughout the Central States in September, R. C. Hall, of the Columbus, Ohio, laboratory, observed two instances of wireworm injury to black locust seedlings in nurseries. One nursery was located at Benton, Ky., and the other at Conway, Ark. The seedlings were killed by the wireworm larvae boring holes completely through the roots at distances ranging from 1/4 inch to 3 inches below the ground surface. The damage appeared to be confined to more or less local areas within the nurseries where the soil was quite heavy, with a good moisture supply. In some beds there were patches of several square feet where practically all the seedlings had been killed by this insect. The damage was estimated as about 5 percent in the Conway nursery and about 10 percent in the Benton nursery.

Prionus sp., a pest in hardwood nursery.--M. D. Wygant, working on shelter-belt insects from the Denver, Colo., laboratory, found a species of Prionus killing quite a few green ash (Caragana) and honeylocust seedlings in the Plains Shelterbelt Nursery at Pierre, S. Dak., during a trip through South Dakota early in September. Generally, the main roots of the seedlings, averaging the size of a lead pencil by September 15, were completely devoured by the large larvae from within 1 or 2 inches of the ground surface to an occasional depth of 14 inches. The larvae, almost 1/3 inch in diameter at the thickest part and ranging from 1-1/2 to 2 inches long, leave a conspicuous oval-shaped open tunnel. All that remained of the main roots on the dead seedlings were a few fragments of bark and a small quantity of coarse fibers in the tunnels. The tunnels follow the roots, occasionally detouring around a section of the root to return at a greater depth. These larvae had killed 10 percent of the hardwood seedlings in a 3- or 4-acre area and had done some damage in all parts of the nursery. The present nursery site was covered with a shrubby growth--cherry, cottonwood, and ash being the principal species--until last winter, when the land was cleared and broken for the hardwood nursery.

Tylonotus bimaculatus Hald. common in Nebraska and South Dakota.--Mr. Wygant also reports that T. bimaculatus is quite common and abundant in the old green ash tree claims and farmstead plantings from 40 to 50 years old in central Nebraska and South Dakota. The trees attacked by this insect die branch by branch, starting at the top. The heaviest attack appears to be at the base of the tree near the ground line. The young larvae feed in the bark and as they become larger they penetrate the sapwood to a short depth. Upon emerging, the adult beetle makes an oval hole to the surface. These holes are the most conspicuous signs of attack on such slowly growing trees. The attacks generally occur in patches on the trees, the area of the patches increasing with each year's new attack. Both T. bimaculatus and the carpenter worm (Prionoxystus robiniae Peck) are commonly found working in the same tree.

Tree midge injurious to ponderosa pine.--J. C. Evenden, of the Coeur d'Alene, Idaho, laboratory, reports that an unidentified tree midge is killing a large percentage of ponderosa pine tips in northern Idaho. The adult midge deposits her eggs at the bases of needle fascicles by forcing them into the soft tissue of the current season's growth and, upon hatching, the larvae excavate small pits in which they feed. As many as 35 midge larvae were found in a 4-inch lateral tip. Usually only 1 larva was found at the base of each fascicle, but sometimes 2 or 3 were present in one pit. As a result of this feeding, the needles on an infested tip fade, the tip dies and appears as a faded, red tip during the season following attack. The infestation assumed serious proportions during the 1935 season, when the tips attacked in 1934 began to show red foliage, and it was ascertained that in some areas as high as 40 percent of the tips were infested.

PLANT DISEASE CONTROL

Barberry eradication employs over 2,000 men.--On October 1, 2,047 men were employed in barberry eradication in 17 States. Of this number, approximately 93 percent had been obtained from relief rolls. The field work is supervised by 133 trained agents under appointment with the Bureau.

W. P. A. program for barberry eradication.--Of the 159 men now employed with W. P. A. funds in Iowa, 146 have been taken from relief rolls, 9 are under appointment as agents, and 4 are from nonrelief sources hired on the security wage basis. At present there is an experienced supervisor with each crew of 9 or 10 men. The work is being conducted in 12 counties and it is planned to add about 25 more men during the months of October and November. E. A. Lundgren, in charge of the work in Colorado, reports that 85 certified relief laborers are now employed in connection with the barberry-eradication program in that State and 5 appointed agents are supervising the work. A complete survey, covering all suspected barberry territory, is being conducted in Pueblo, Fremont, Rio Grande, Morgan, and La Plata Counties. In Rio Grande and La Plata Counties most of the bushes eradicated are *Berberis fendleri*, a species native to southwestern Colorado and extremely susceptible to attack by stem rust. Survey activities in South Dakota have been restricted to eastern and southeastern counties. George W. Eade reports that only scattered bushes have been located so far but many questionable areas of timberland along rivers and streams have been given a careful inspection. There are 33 men, divided into 3 crews, at work in South Dakota.

Physiologic-form survey.--Nine hundred and thirty-five collections of stem rust have been identified as to the physiologic forms present. One hundred and seventeen of these collections were from barberry bushes and comprised 21 physiologic forms, or a different form for every 6 collections, and 818 were from grains and grasses, comprising 18 different forms, or one in every 45 collections. Forms 56 and 11 continued to lead in prevalence, with forms 34 and 36 next. The total numbers of identifications of each of the 9 most common forms isolated to date are as follows:

Form No.	Times identified	Form No.	Times identified
	Number		Number
56	362	19	22
11	178	38	21
34	104	17	11
36	57	21	11
49	25		

Form 56 is proving to be by far the most prevalent, both in collections from barberry and from grains and grasses.

LIBRARY

Progress of blister rust control in the Northeast.--Blister rust control work in the Northeastern States during the period May to August 1935 resulted in the eradication of 16,577,069 Ribes bushes from 683,402 acres. This work required 222,563 man-days of labor, which was performed under five programs--regular cooperative, E. C. W., E. R. A., P. W. A., and W. P. A. During August over 6,000 men were employed on the various control projects. The W. P. A. program in August gave employment to an average of 2,379 men for 31,502 man-days in 185 townships. The number of such workers in September was increased to over 3,000 in the nine States in this region.

Blister rust W. P. A. crews developing satisfactorily.--T. J. King, district leader in New Hampshire, reported on September 14 that he had 11 W. P. A. crews at work. The men, both old and young, with comparatively few exceptions, have developed quite satisfactorily. Their spirit is good and they are anxious to have the work continue as long as possible. Checking records show that for the most part they are doing thorough Ribes-eradication work, although these crews are slower than our regular crews. Skunk currants are becoming more generally defoliated but there are still a sufficient number and distribution of leaves to enable the crews to locate them, and the wild gooseberry foliage is still in good condition.

Five C. C. C. workers eradicate 17,000 Ribes in 1 day.--A crew of 5 men from the 121st Company, C. C. C., West Burke, Vt., working from a side camp located near the village of Lower Waterford, made what is believed to be a record in eradicating Ribes. In 1 working day of 7 hours they located and destroyed 17,000 Ribes on an area of 8 acres in the town of Waterford, Caledonia County. The total number of Ribes destroyed that day with the entire force of 25 C. C. C. workers was 25,000 and the total area worked was 35 acres. Prior to this year these men had had no experience in such work.

White pine blister rust found in Illinois and Indiana.--Blister rust was found this season in Illinois and Indiana, thus bringing the number of infested States to 23. No trace of the disease had ever been discovered in Illinois before, and the only case in Indiana was one of an introduced infected pine which was found and destroyed 18 years ago and from which blister rust never spread. On a survey undertaken this fall by the Division of Domestic Plant Quarantines and the Division of Plant Disease Control, J. M. Corliss on September 14 found two infected Ribes nigrum bushes at Warren, in Jo Daviess County, Ill., and R. A. Sheals and F. F. Franklin on September 27 located the rust in LaPorte County, Ind., on R. cynosbati. Specimens of infected leaves from these bushes were forwarded for examination to the Division of Forest Pathology, Bureau of Plant Industry, and specialists of that Division reported on October 7 that by spore measurements and a staining test the rust had been identified as white pine blister rust, caused by Cronartium ribicola. Specimens were also obtained in an additional county, but the identification has not yet been confirmed.

W. P. A. blister rust control work.--On October 5, 9,257 W. P. A. workers were employed on blister rust control work throughout the United States. Of this number 8,745 were relief workers and 512 were nonrelief employees.

COTTON INSECT INVESTIGATIONS

Good gains from cotton flea hopper control.--Incomplete records from acre plats and large-scale field dusting for flea hopper control indicate very good control and large increases in yields this year in experiments conducted by K. P. Ewing and R. L. McGarr at Port Lavaca, Tex. In some tests dusting with sulphur has increased the yield over 500 pounds of cotton per acre and mixtures of sulphur and paris green have given even larger increases. Another factor is that the crop is considerably earlier on the treated areas, which has been very important this year on account of the almost continuous infestation of leaf worms and the damage from boll weevils in late cotton.

Abundance of flea hopper host plant.--*Croton* spp. or goatweed, the most important host plant for overwintering eggs of the cotton flea hopper, is very abundant this year, according to reports from Mr. Ewing. Observations on a trip by rail from Sweetwater, Tex., via Fort Worth to Houston, showed a large amount, apparently more than usual, on the route through the cotton-growing sections of central Texas.

Cotton root aphids at Florence, S. C.--F. F. Bondy and C. F. Rainwater report that their studies of the brownish purple root aphid of cotton, *Rhopalosiphum* sp., in the field and insectary show that winged forms will occur under two conditions--crowding of the individuals, and lowering of the temperature. This species was not observed in the fields after July 1, but the green cotton root aphid (*Anuraphis maidi-radicis* Forbes) and the white cotton root aphid (*Trifidaphis phaseoli* (Pass)) were found on cotton roots until the second week of July. It is difficult to find any of these aphids on any host plant during periods of hot, dry weather, as they require considerable humidity and cannot be found when there is little moisture in the top soil.

Pink bollworm infestation.--H. S. Cavitt, Presidio, Tex., submits the following data on the pink bollworm infestation in the Big Bend of Texas. Examination of cotton blooms was started in June and continued throughout July. In 1935 a total of 78,000 blooms were examined and 0.742 percent were found infested, as compared to 33,300 blooms examined and 0.069 percent infestation in 1934. Green bolls were used for determining the infestation after August 3, 100 boll samples being examined semimonthly from 22 fields. Above the Conchos River the acreage planted this year was very small, owing to shortage of water. The cotton was early and the infestation started early. By the latter half of September there was 100-percent infestation in the green bolls, as compared to 84 percent in 1934. Below the mouth of the Conchos, where most of the acreage is located, the infestation is lighter, but increased rapidly during August and September. By the end of September it had reached an average of 65 percent, as compared to 40-percent infestation of green bolls in 1934. C. S. Rude and W. T. Gurley report the infestation at Tlahualilo, Mexico, as 93 percent in zoca cotton and 97 percent in plant cotton on September 27. Reports from other parts of the Laguna indicate light infestations in some sections and extremely heavy ones in others.

Pink bollworm in Puerto Rico.--L. C. Fife, Mayaguez, P. R., reports that very few pink bollworms were found in Puerto Rico in August and September, which probably accounts for the absence of infestation in several of the known host plants on the island. The buds, blooms, and seed pods of the following 4 malvaceous plants were examined with negative results: Maga (Montezuma speciosissima), clamor (Thespesia populnea), okra (Abelmoschus esculentus), majagua (Pariti tiliaceum). The only plants actually found infested with the pink bollworm during this period were cotton plants, Gossypium sp. Twenty-one green and 75 open bolls collected on August 22 from 5 wild cotton trees at Corozal when carefully examined showed an exit hole, an empty pupa case, and feeding signs in several open bolls. Between August 28 and September 18, 1,791 bolls of Sea Island cotton were examined, of which 46, or 2.56 percent, were infested. At Isabela no infestation was found in 7 fields and only 1 percent in the eighth field. At Quebradillas 2 fields were examined, with no infestation discovered in 1 and only 1-percent infestation in the other. At Camuy 3 fields showed no infestation, while the other 2 had 5-percent and 12.3-percent infestations on September 18.

Hosts of Microbracon kirkpatricki Wilk.--As previously reported, M. kirkpatricki, one of the pink bollworm parasites imported from Egypt, has been found to readily attack the boll weevil. Further tests by J. W. Folsom and P. A. Glick, Tallulah, La., show that this parasite oviposits readily on the larvae of the cotton leafworm in the insectary. The eggs hatched but the parasite died, apparently unable to penetrate the skin of the host. M. kirkpatricki laid eggs freely and developed normally on larvae of the dipterous Eurosta solidaginis Fitch taken from galls on goldenrod.

PINK BOLLWORM AND THURBERIA WEEVIL CONTROL

Gin-trash inspection.--Gin-trash inspection has continued to go forward satisfactorily, no specimens of the pink bollworm having been found either inside or outside the regulated areas this season. The only regulated areas in which gin-trash inspection has been performed thus far are in southern Georgia and northern Florida. All trash from gins in these areas has been inspected throughout the season. The inspections have also been very intensive at gins closely adjacent to these regulated areas and in the vicinity of designated oil mills to which seed was sent. As the ginning season is drawing to a close, the inspections cannot be continued much longer; however, a supply of green bolls is being obtained for later laboratory inspection. Inspections in Louisiana and Mississippi have been completed. A general inspection of about 1 month was made in the northern half of each State, and green bolls were also collected in areas not covered by the machines. In Texas the machines have continued to work northward and westward, and at the close of the month they were ready to begin inspections in the Western Extension of Texas, both within and outside the regulated area. Another machine is operating in the southern counties of Oklahoma.

Trap-plot cotton in the Big Bend area of Texas.--The remaining trap plot in the Castolon section was worked until September 10 and then discontinued. At that time it appeared that some commercial damage would be done by the insect. Recently, however, a general investigation was made. It so happened that pickers had just gone over the fields, and as there was no open cotton left it was very easy to get an idea of the damage. It is of interest to note that while some damage will probably be done, it will be considerably less than was at first thought. In the Presidio section a few spots in several fields are beginning to show slight damage. It is a little too early to form any definite conclusion as to the degree of damage and the acreage involved. Field clean-up is to be carried on again this fall, and these spots will be cleaned first.

Road-station inspection.--During the month 934 cars were inspected at the Marfa, Tex., road station, and 13 were found to be carrying contraband material. Only one interception was infested by the pink bollworm, this consisting of 18 locks of seed cotton found between the cab and body of a truck. The cotton contained one living larva. As this station has been operated several seasons, excellent cooperation is being received from the public and no difficulty has been experienced with cars passing this station without stopping.

Eradication of Thurberia plants in Arizona.--The destruction of Thurberia plants in the regulated area of southern Arizona has been continued throughout the month with W. P. A. funds. Some 70 men have been at work, but early in October word was received that the remaining equipment had been delivered and the full quota of men would soon be at work. During the month some 10,000 plants were destroyed, which is less than for the few days worked during the latter part of August. When the project was first started the men worked up the canyons where the majority of plants occur, and naturally a considerable number were removed each day. It was soon found, however, that it would be exceedingly difficult to keep an accurate check on the territory covered, and a new method was begun. The men spread out in a line and worked forward to a certain point, then moved over and repeated the operation. By this method an accurate check could be kept, so that no ground was overlooked. A considerable area was gone over during the month, even though not a large number of plants were destroyed.

TRUCK CROP AND GARDEN INSECT INVESTIGATIONS

Special treatments of calcium arsenate decrease its toxicity to southern armyworm.--C. B. Wisecup and J. P. Vinzant, of the Sanford, Fla., laboratory, report that as a result of recent laboratory tests it was shown that calcium arsenate, when prepared at a temperature of 100° C., or when treated in an autoclave for 3 hours at a steam pressure of 150 pounds and a temperature of 180°, showed a definite decrease in toxicity to newly hatched and quarter-grown larvae of the southern armyworm (Xylomeges eridania Cram.), as compared to the basic, normally prepared calcium arsenate. A total of 3,600 newly hatched and an equal number of quarter-grown larvae were used in these tests. Each of the calcium arsenate materials was distributed with a precision dusting apparatus in such a manner that approximately 0.3 mg of dust was deposited per square inch on each surface of sweetpotato leaves before they were exposed to the test larvae.

X

Autoclaving decreases foliage injury without decreasing toxicity of calcium arsenate to Mexican bean beetle.--As a result of recent field tests,

N. F. Howard and R. H. Davidson, of the Columbus, Ohio, laboratory, report that samples of calcium arsenate autoclaved at 150 pounds of steam pressure for 2 hours were rendered safe on bean foliage, whereas samples of calcium arsenate from the same lot that were heat treated in an electric oven at 180° C. for 2 hours, as well as samples of the basic normally prepared material, injured bean foliage severely. However, there was some indication that the calcium arsenate that was heat treated in an electric oven caused slightly less foliage injury than did the basic normally prepared material. In another series of tests it was demonstrated that the autoclaved calcium arsenate was satisfactorily toxic to the Mexican bean beetle when used at the rate of 1 pound to 50 gallons of water and that a trace of arsenic injury was apparent on some of the plots treated with this material. It is concluded, therefore, that autoclaved calcium arsenate should be used with hydrated lime to provide a proper margin of safety.

Cube dusts superior to derris dusts in laboratory tests against imported cabbage worm in California.--R. E. Campbell, of the Alhambra, Calif., laboratory, reports that in laboratory tests cube dusts have been slightly more toxic to the imported cabbage worm than have derris dusts with an equivalent rotenone content. Talc was used as a diluent in each case, and applications were made with a precision duster at a dosage of 1 g per plant.

Shade-grown tobacco treated successfully for tobacco hornworms.--Recent field experiments conducted by F. S. Chamberlin, of the Quincy, Fla., laboratory, against tobacco hornworms (Phlegethontius sexta Johan. and P. quinquemaculata Haw.) on shade-grown tobacco in the Florida-Georgia tobacco area demonstrated that a mixture of paris green and hydrated lime in the proportions of 1-6 by weight can be applied to the disease-resistant types of shade-grown tobacco at the rate of approximately 4 pounds per acre, with little burning of the tobacco foliage, and that this treatment gave a satisfactory degree of hornworm control, provided the larvae had not passed the third instar. It was shown that this mixture could be applied more uniformly than undiluted paris green and the total quantity required per acre was correspondingly reduced. The "float" method of applying the paris green-hydrated lime mixture was used in these tests. This method involved the application of the dust in the center of the space between the rows of tobacco in such a manner that the dust drifts or "floats" onto the plants, instead of being applied directly.

Imported pea weevil parasites released in Idaho.--T. A. Brindley, of the Moscow, Idaho, laboratory, reports that during September a total of approximately 425 living adults of the pea weevil parasite Triaspis thoracicus Curt. were received at Moscow from the European parasite laboratory at Hyeres, Var, France, through cooperation with the Division of Foreign Parasite Introduction. These parasites originated in Austria. The same day they were received approximately 325 adults were released on a plot of peas badly infested by the pea weevil. The remaining parasites were retained in laboratory cages containing host material in various stages of development in an attempt to obtain pertinent data respecting important phases of their biology.

Biology and control of mole crickets in Florida.--In summarizing biological and control studies on two species of mole crickets, Scapteriscus acletus (R. & H.) and S. vicinus Scudd., J. N. Tenhet, of the Sanford, Fla., laboratory, reports: (1) Mole crickets cannot be reared satisfactorily in small tight containers. A large flowerpot plunged in the soil out of doors gave the best results of any rearing cage tried thus far. (2) Some vegetative shelter seems to be absolutely necessary for the protection of the newly hatched nymphs, as field observations demonstrated that the young nymphs were abundant only where there was a heavy cover crop of weeds, grass, or similar growth. It may be possible to take advantage of this feature in devising control measures for these pests. (3) Young mole crickets apparently cannot develop satisfactorily on a diet composed solely of living vegetation, as their principal food appears to be decayed organic matter. (4) Baiting experiments under controlled conditions in the laboratory demonstrated that under the most favorable circumstances approximately 50 percent of the nymphs feed on various baits. (5) The addition of synthetic cryolite to bait in proportions ranging from 1 to 25 percent of the weight did not appreciably increase the attractiveness of the bait to the mole cricket nymphs.

Possible utility of cultural methods to prevent cabbage webworm injury.--In summarizing results obtained in biological studies on the cabbage webworm (Hellula undalis Fab.), W. A. Thomas states that under conditions existing in the Chadbourn, N. C., district, this insect may complete its life cycle in less than a month during the summer; hence, it appears to be capable of producing from four to five generations during its normal period of occurrence throughout the summer and fall. This definition of generations of the cabbage webworm may lend itself to the establishment of safe planting dates of susceptible crops in order to escape serious infestation by this insect.

Habits of cornfield ant suggest possible method of avoiding injury by strawberry root aphid.--Based on recent field observations, L. B. Reed, Chadbourn, notes that the gravid queens of the cornfield ant (Lasius niger americana Emory) select certain types of vegetation on which to alight and under which to establish new colonies. Crabgrass is found to be particularly attractive for this purpose. On the other hand, only a few queens could be found in pure stands of velvetbeans or sweetpotatoes and none could be found in freshly plowed land bare of vegetation. This suggests the possibility of avoiding severe infestations of the strawberry root aphid (Aphis forbesi Weed), of which the cornfield ant is the most assiduous attendant, by selecting for strawberry planting areas distant from crabgrass and other favored host vegetation of the cornfield ant, and choosing, where possible, sites near velvetbeans, sweetpotatoes, or newly plowed land.

Proportion of sulphonated castor oil important factor in effectiveness of derris sprays against red spider.--C. A. Weigel, of the Beltsville, Md., laboratory, and H. H. Richardson, formerly of this Division, report that tests conducted against red spider mite (Tetranychus telarius L.) at Barberton, Ohio, indicated that a spray composed of derris root powder in water, with a rotenone content of approximately 0.0034 percent, which had not proved entirely effective, showed a marked increase in effectiveness when the proportion of sulphonated castor oil was increased from 1-400 to 1-300. With this proportion, kills of 98.4 percent of the adults and 96.4 percent of the nymphs were obtained.

It was observed that increasing the rotenone content to 0.0052 percent without increasing the proportion of sulphonated castor oil did not appreciably increase the effectiveness. Similar results were obtained when cube root powder in water, containing approximately 0.0095 percent of rotenone, was used with the sulphonated castor oil.

Derris sprays or dusts give best control of cabbage worms in Ohio.--N. F. Howard and R. H. Davidson, of the Columbus, Ohio, laboratory, report that as a result of a series of field tests for the control of cabbage worms on cabbage grown for kraut in the vicinity of Clyde, Ohio, a derris or cube dust containing 0.05 to 0.1 percent rotenone, applied at the rates of from 20 to 25 pounds per acre, gave good control of the imported cabbage worm. It was indicated that three or four applications may be required to obtain control in some instances. Good results were also obtained by the application of derris or cube root sprays containing 0.01 percent rotenone. For the control of the cabbage looper it was necessary to use derris or cube dusts containing 0.4 to 0.5 percent of rotenone, or to use derris or cube root sprays containing 0.015 to 0.02 percent of rotenone. Applications were made every 10 to 14 days after the worms appeared in large numbers. There was no significant difference in the degree of control obtained from the use of derris root or cube root dusts or sprays, provided the rotenone contents of the insecticides were practically equivalent. The addition of spreaders or stickers to derris root suspensions in water applied as sprays seemed to slightly increase the control obtained. Very little difference in the degree of control resulted from the use of a number of diluents for derris or cube dusts. Phenothiazine applied as a dust with talc or applied as a spray was ineffective against the two species of cabbage worms mentioned and this insecticide seemed to injure the plants slightly.

Effectiveness of devil's-shoestrings root against Mexican bean beetle in Ohio.--N. F. Howard and R. H. Davidson, Columbus, report that a mixture of devil's-shoestrings root (Cracca virginiana L.) containing approximately 0.6 percent rotenone, gave satisfactory control of the Mexican bean beetle when used undiluted as a dust or when used as a spray, with a content of 0.01 percent rotenone, on small plots of beans in the field under conditions of heavy infestation.

Nicotine sulphate sprays give promise of control of bean thrips in Colorado.--R. L. Walls, of the Grand Junction, Colo., laboratory, reports that in a recent field test on 12 acres of beans, a 40-percent nicotine sulphate spray in water (1-800) caused a material reduction of the population of the bean thrips on the fourth day after application in a heavily infested field of beans.

INSECTS AFFECTING MAN AND ANIMALS

Screw worm invades grain belt.--As a result of shipments of infested animals from the South into the Northern States, the screw worm fly (Cochliomyia americana Cushing & Patton) gained a foothold in southwestern Illinois and Iowa, and in eastern Missouri. Intrastate shipments of stock and natural dissemination of the fly caused a rapid spread of the pest, and a lack of familiarity of the grain-belt farmers with the insect occasioned a rather severe loss in a comparatively short time. It has been estimated that over 7,000 cases have occurred in Illinois and about 400 animals have been killed. Recent low temperatures, however, have almost entirely stamped out the infestations.

Screw worm cases decrease in Southeast.--In the Southeastern States, particularly the more northern sections, lower temperatures have markedly decreased the number of screw worm infestations. With the approach of winter, the Bureau plans to gradually bring to a close the intensive campaign it has been waging against the pest for the past 5 months. Records obtained in this work up to September 28 show that of the 133,520 cases reported, 46.7 percent occurred in cattle and 43.7 percent in hogs. Of the predisposing causes of infestation, tick bites were responsible for 40 percent, and such practices as dehorning, branding, marking, castrating, and uncontrolled breeding of animals for about 30 percent.

Reports of severe screw worm infestations from Southwestern States.--Reports from the Bureau's Texas laboratories state that an average infestation of all animals in the Edwards Plateau section reached approximately 15 percent, with a mortality rate of 6 percent, 38 percent of the infested animals dying. O. G. Babcock, Bureau representative, is at present making a survey of the pest in New Mexico, Arizona, and California. He states that in New Mexico approximately 17 percent of the animals were infested this year. Reports reaching the Bureau from various sources in California indicate unusual losses there this year from screw worms. Particular mention has been made of eye infestations in feeder lambs.

Stable fly outbreak in Kansas and Nebraska reduces milk production.--According to reports received by John B. Shepard, senior agricultural statistician of the Division of Crop and Livestock Estimates, from numerous dairymen in Kansas and Nebraska, an unusual abundance of the stable fly about the middle of September caused such annoyance to milk cows that milk production fell off from 50 to 75 percent. The animals would not stay in the pastures and owners were compelled to buy extra feed. In many instances the cows had to be kept in the barns 10 days.

Mosquitoes cause death of animals in Florida.--W. V. King, Orlando, Fla., reports that the recent heavy storms in that State have produced very favorable conditions for mosquito breeding, particularly in the Everglades, notorious as a breeding place for the "spotted-legged" mosquito (Psorophora columbiae D. & K.). Around Lake Okeechobee several deaths of animals have been reported as being due to the unusual abundance of this species.

FOREIGN PARASITE INTRODUCTION

Fruit fly parasites to Puerto Rico.--Under the Puerto Rico Processing Tax Fund Project three shipments of fruit fly parasites have been received from O. C. McBride, Honolulu, Hawaii. The records on these shipments are as follows:

Species	Adults forwarded	Adults alive at destination
	Number	Number
Diachasma tryoni Cam.	2,339	1,241
Diachasma fullawayi S. H.	174	82
Opius humilis Silv.	191	94
Tetrastichus giffardianus Silv.	1,515	1,111
Total	4,219	2,528

There were also received four shipments of Opius crawfordi (Vier.) from A. C. Baker, in Mexico, of which species 2,585 adults were forwarded and 1,012 were alive upon arrival. All living material was liberated in sections infested with Anastrepha spp., and extensive oviposition was noted.

FOREIGN PLANT QUARANTINES

Entomological interceptions of interest.--Sixteen larvae of the Mediterranean fruit fly (Ceratitis capitata Wied.) were intercepted at San Juan, P. R., on August 7 in a single pear in stores from Spain. Living specimens of the lygaeid Cligenes picturata Dist. were taken at Nogales, Ariz., on August 22 and 23 on Echinocactus nidulans, Echinocereus sp., and Mammillaria sp. in cargo from San Luis Potosi, Mexico. Sour limes arriving in ship's stores at San Pedro, Calif., on August 6 from the Philippines, were infested with living specimens of the Philippine orange moth (Prays citri Miller). A living larva of the weevil Liparus coronatus Goeze was intercepted at Baltimore, Md., on August 18 in a carrot root in stores from Spain. This species is recorded as being found on sugar beet in the Union of Soviet Socialist Republics. A specimen of the Asiatic rice borer (Chilo simplex Butler) was found at Chicago, Ill., on July 29 in rice straw used as packing for cargo from the Philippines. This represents our first record of this pyralid being intercepted from the Philippines. A living adult of the pythid Cariderus planirostris (F.) was taken at Norfolk, Va., on June 13 in a sycamore log in cargo from France. A larva and some pupae and adults of the mango weevil (Sternochetus mangiferae Fab.) were intercepted at Boston, Mass., on June 21 in seeds of mangoes in stores from Colombo, Ceylon. This weevil was taken previously in mango from Ceylon in 1927. Living larvae and adults of the bostrichid Dinoderus bifoveolatus Wollaston arrived at New York on July 16 in barbasco (Jacquinia sp.) roots in the mail from England. A living specimen of the West Indian sweetpotato weevil (Euscepes batatae Waterh.) was intercepted at San Francisco on July 29 in sweetpotato in baggage from Tahiti. Living pupae of Diatraea grandiosella Dyar were taken at Presidio, Tex., on July 15 in a green cornstalk in baggage from Mexico. This is the first record in our files of this pyralid being intercepted. A living larva of the weevil Conotrachelus dimidiatus Champ. was intercepted at Hidalgo, Tex., on July 26 in a dried guava in baggage from Mexico. Adults of Eurytoma plotnikovi Nikolskaja and Megastigmus pistaciae Walk. were taken at Washington, D. C., on August 6 in pistache (Pistacia vera) seeds in the mail from Tashkent, Union of Soviet Socialist Republics.

Pathological interceptions of interest.--Didymella sp. was intercepted at Seattle on April 5 on Camellia japonica from Japan. No species of Didymella was found recorded as occurring on camellia. The first interception of Helminthosporium allii Campanile from Egypt was made on September 10 at Mobile on garlic. The first interception of H. avenae Eidam was made on August 24 at San Pedro on oat straw from Japan. Phoma sp. was intercepted on April 8 at New York on a globe artichoke from France. This may have been P. bellynckii West, but no specimens are avilable for comparison. Phyllosticta aucubae Sacc. was collected at New York on March 24 on Aucuba japonica plants from California--Stevenson's manual lists this disease as occurring in Italy only. P. evonymella Sacc. was intercepted for the first time on May 29 at Seattle on euonymus from Japan. Phyllosticta sp. (not any of the species described on the host) was intercepted on April 4 at Seattle on camellia from Japan. The first interception of Septoria cornicola Desm. was made at Boston on August 25 on Cornus canadensis from Canada. Septoria sp. was intercepted on May 23 at Washington on the leaves of Ceropegia crispata from South Africa. The fungus is thought to be Septoria oxypetali F. Tass. which occurs on a nearly related plant from the same origin, but no Septoria has previously been reported on Ceropegia. A very interesting fungus of the family Moniliaceae, tribe Hyalosporae, was found on the roots of Yucca tremuleana from Cuba on May 21 at Washington. Studies to date indicate that it may be a species of an undescribed genus. The wheat nematode Anguillulina tritici was found infesting a small sample of wheat seed from Turkey examined on June 13 at the Inspection House, Washington, D. C.

More light, more "bugs".--Inspection of ship's stores by flashlight at Mobile revealed infestation of 20 pounds of cabbage. The steward, by request, moved the cabbage to where good light was available and the following insects were collected: Brevicoryne brassicae L., larvae of Ceutorhynchus quadridens Panz., Muscina sp., Nysius senecionis Schill., Oxytelus rugosus Fab., Philonthus sp., Plutella maculipennis Curt., and two undetermined insect types.

Japanese beetles at sea.--Luis A. Catoni, chief of the Insular Plant Quarantine Service of Puerto Rico, calls attention to a case of considerable interest from the quarantine viewpoint, indicating how readily some types of insects may be spread long distances. On July 20 the S. S. San Juan left New York for Puerto Rico, carrying as stores on her foredeck a pile of potatoes in sacks, presumably having originated in New Jersey. It so happened that this boat carried an entomologist, A. H. Madden, bound for the Mayaguez Experiment Station in Puerto Rico. Shortly after sailing Mr. Madden noticed beetles emerging from the potato pile and flying around the deck. He caught some and immediately recognized them as the Japanese beetle (Popillia japonica Newm.). This identification was confirmed by H. L. Dozier. The beetles were in evidence on the ship for 2 days, at the end of which time the potatoes were thrown overboard because of spoilage.

A family tries smuggling in more ways than one.--A Mexican family returning through Nogales from a trip to Mexico offered a small basket of limes as the only plant material they had. The inspector detected the odor of guavas and found 7 under the limes. Two more guavas were found in a jar of sausage. A mango was hidden among some small squares of bacon. The customs inspectress found 2 more mangoes when she searched the woman and older daughter. Five cases were ripped off a pillow that seemed too heavy and 21 bulbs and more guavas were removed. While all this was going on the smaller children were playing outside. A customs inspector noticed a lump on a baby so it was examined and a large mango was shaken out of its clothing.

DOMESTIC PLANT QUARANTINES

Citrus canker unearthed by relief workers.--The recent finding of citrus canker infection in Terrebonne Parish, La., was the direct result of work of relief laborers in clearing out wild growth, according to the inspector working this area, who states that the infected seedlings were growing in the bottom of an arroyo, completely surrounded by an entanglement of wild growth, and might otherwise have remained undiscovered indefinitely. The two infected properties are fortunately not within the commercial area of Louisiana, and this is the only parish in the State now known to be infected with citrus canker. Inspections in citrus-growing regions in Louisiana had yielded no cases of infection since August 1934, when citrus canker was found in this parish. The densely planted jungle nature of the commercial citrus area in Louisiana would present a most difficult problem of eradication should the disease become established there.

Transit inspection resumed at several stations.--With the return of the fall shipping season for nursery stock, transit inspection was resumed on September 17 at Omaha, where several uncertified shipments from the Japanese beetle area have been intercepted. Inspection is also being resumed at Kansas City, Spokane, Seattle, and Portland about October 15, and at Albany, Springfield, Mass., Detroit, Cincinnati, Cleveland, St. Louis, and Atlanta about November 1, in cooperatien with States and with other divisions of the Bureau. The inspection of mail, express, and freight shipments is conducted on a year-round basis at Boston, New York, Philadelphia, Washington, Jacksonville, Chicago, and St. Paul, and on a part-year basis at Pittsburgh.

Violations consigned to every State in Union in 1935.--A tabulation of violations intercepted by transit inspectors during the fiscal year 1935 shows that every State in the Union and the District of Columbia would have received shipments moving in apparent violation of Federal domestic plant quarantines but for such interceptions. Approximately 2,041 such shipments were reported, including intrastate shipments from regulated areas. The States to which the greater numbers were en route were, in order named, New York, Illinois, Pennsylvania, Florida, Maine, and Ohio, in or near all of which transit inspection is regularly conducted. The number of violations reported for the different States ranges from 106 to 382.

Garden club chain letter going rounds.--"If you want to join our flower club, send seeds, bulbs, or plants to the top name, No. 1, and place your name at the bottom of the list, omitting name No. 1 and send a card to five of your flower-loving friends. When your name gets to the top of the list, it should have reached 1,000 persons who will send you flower seeds, bulbs, or plants." So reads a garden club chain letter, according to the Wisconsin State Entomologist, who is releasing newspaper stories warning the public against sending uncertified nursery stock in such manner and calling attention to Federal and State plant quarantine regulations which govern the interstate movement of certain plant materials. Transit inspectors find that about 50 percent of the violations are shipped by persons not commercially engaged in the nursery business. Such shipments are more likely to be infested than plants produced in nurseries receiving periodic inspection. The number of letters that come to this Division, however, from persons making inquiry as to shipping regulations, indicates that the general public is becoming better informed as to the existence of plant quarantines.

Results of phony peach survey.--A survey of States bordering on the north of known infected areas, undertaken to determine whether the disease was spreading to the peach-growing areas of this region, has resulted in finding two more infected counties each in Missouri and North Carolina, as well as new infections in Maryland and Kentucky reported in a former number of the News Letter. The additional counties are Stoddard and Dunklin, Mo., and Catawaba and Mecklenberg, N. C., not heretofore classed as infected. The work in Illinois, South Carolina, Tennessee, and Arkansas, all formerly known to be infected, did not reveal any newly infected counties, while the work in New Jersey, Delaware, West Virginia, and Virginia yielded no definite cases of phony peach disease. In the more generally infected area of the Gulf region, intensive inspection and eradication have been carried on both in orchards and in the vicinity of peach-growing nurseries.

Relief work on peach mosaic.--Work in Delta County, Colo., which has been carried on for approximately 2 months, was completed for the fall early in October. It represents a coverage of all peach-growing properties in the county and resulted in finding no peach mosaic infections. In Mesa County, Colo., grove inspection will be continued throughout October, representing a complete coverage of the main commercial orchards of most of the area in which peach mosaic was previously found. Eighty-two relief workers in these two counties were employed on this project, and up to October 1, 251,537 trees were inspected, and 1,001 trees and infected stumps were destroyed. The recent outbreak of peach mosaic in Colorado is recognized as a serious menace in the important peach-producing region along the Colorado River east of Grand Junction, and it is believed the eradication of infected and abandoned trees will aid in preventing the spread of this disease.

Oregon quarantine on narcissus amended.--Certified narcissus bulbs taken from crates or other original containers for reshipment into the State of Oregon in small lots will need to be labeled by the shipper to show that the bulbs were certified at origin, under an amendment dated September 11, 1935, to Oregon quarantine order No. 31 (new series).

BEE CULTURE

Airplane dusting takes heavy toll of bees in California.--The apiaries located in the vicinity of large tracts of tomatoes that have been dusted by airplanes continue to suffer heavily from the effects of poison. The apiary of the Bureau of Entomology and Plant Quarantine at Davis, as well as that of the University of California, also located at Davis, are so depleted in bees as to constitute practically a total loss. Not only have adult bees and brood been killed, but the bees have carried in so much of the poison dust and stored it with pollen that the combs will have to be thoroughly washed and renovated before they can be used again. If the trouble continues it will be

UNIVERSITY OF FLORIDA
3 1262 09312 2728

impossible to conduct experimental work with bees in the vicinity of Davis. The same situation, of course, holds true in other sections of California where airplane dusting is extensively practiced.

Beekeepers are asking for a laboratory in the North Central States.--At the recent joint meeting of the American Honey Producers' League and the American Honey Institute, held in Detroit from October 7 to 10, much interest was manifested in the possibility of establishing a Government field laboratory somewhere in the North Central States for the purpose of investigating many beekeeping problems with which honey producers are confronted in that region. The American Honey Producers' League unanimously adopted a resolution asking that such a laboratory be established.

Pollen-reserves studies to be extended.--The work of C. L. Farrar and A. P. Sturtevant, of the Intermountain Bee Culture Field Laboratory at Laramie, Wyo., on the use of pollen reserves, is giving such promising results with respect to better wintering and the rapid building up of colonies in the spring that it seems desirable to inaugurate similar work elsewhere. The possibility of producing better crops in southern California through the study of pollen reserves in that section holds considerable hope, and in order to familiarize himself with the methods used in Laramie, F. E. Todd, in charge of the Pacific States Bee Culture Field Laboratory at Davis, Calif., has been visiting, in company with C. L. Farrar, some of the apiaries in Wyoming and Colorado, where the pollen-reserves work is under way.

IDENTIFICATION AND CLASSIFICATION OF INSECTS

Cerambycid larvae intercepted in packing-case wood.--Larval specimens of some species of *Callidium* (probably *C. violaceum* L.), obtained from packing-case wood from Europe were recently identified by A. G. Boving. The collection was made at Seattle, Wash., in September of the present year, but the cases involved have been in storage in a bonded warehouse since November of last year.

Further distribution in North America of a European weevil.--Specimens of a weevil recently submitted for identification by A. W. Baker, of the Ontario Agricultural College, have been placed by L. L. Buchanan as the European species *Sitona cylindricollis* Fahr. These specimens were collected at Lindsay, Ontario, in August of this year and, according to Professor Baker, were quite abundant, attacking white clover. The species was first reported in North America at Middlebury, Vt., in 1932.

Rediscovery of an Ashmead braconid.--Among specimens of Hymenoptera received for identification from the Bureau of Biological Survey of the Department, C. F. W. Muesebeck has discovered two specimens, one from Massachusetts and the other from New Hampshire, which agree definitely with the description of *Neoblacus rufipes* Ashmead, the type example and only known specimen of which has long been missing from its pin in the National Museum collections.

---oOo---